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COLLECTING AT LAKE WORTH, FLA.

By ANNIE TRUMBULL SLOSSON.

I reached Palm Beach on the east side of Lake Worth on December 31st, a few days after the first great "freeze" of this strange, cold Winter. Of course even in South Florida, where the temperature is generally so uniform throughout the year, there is a season of rest for both plant and insect life. And the Winter months—the dry season—show a great lessening of the number of insects. But for several years I have collected in Florida through January and February, and have never seen as little insect life as in the Winter months of this year of 1895. Still in the two weeks of my stay at the Lake I found some rare and interesting things. There was very little in the way of Lepidoptera. In the spots where last March the air was full of fluttering wings and gay with bright tints of butterflies and day moths, there was now scarcely a sign of life or motion. The flowers around which they then flitted and hovered were dead, the vines, shrubs and trees dry and leafless. I saw one *Callidryas agarithe* only, where last season the place was all golden with their waving wings; I took one *Heliconia charitonia*, and a

pair of *Pieris ilaire*. I was also so very fortunate as to capture one more specimen of the rare little beauty, *Thecla acis*, of which I found a pair last year. The only butterfly which was at all common was a little blue *Lycæna*,—I think it is *L. ammon*—which was flying about the few and rare blossoms near the beach. Near the hotel a white bur marigold (*Bidens leucantha*) had escaped the frost, and was in bloom everywhere, looking much like our common daisy or white weed of the North. Probably because it was one of the very few plants in flower this proved exceedingly attractive to Hymenoptera and Diptera. The brilliant carpenter bee, *Xylocopa micans*, always common here, boomed and buzzed about these blossoms, a few bumble bees (*B. pennsylvanicus* and *B. americanorum*) came to them at times, and *Melissodes bimaculata*, one or two species of *Augochlora* and *Agapostemon* flitted about them. Here, too, I captured two specimens of a tropical insect, *Elis tricincta*, never before recorded as found in the United States. A handsome *Cœlioxys*, black and red was taken here and is probably either a new species or West Indian. Upon one or two lime trees there were a few blossoms left untouched by the frost, and around these were always flying wasps and hornets. A *Vespa*—*V. cuneata*, I think—*Polybia cubensis*, and two or three species of *Polistes*, were common here. And *Zethus slossonæ* Fox was very abundant. I took some twenty specimens of this one morning, and among them found *Eumenes smithii*, which, from its coloration and superficial resemblance, I had mistaken for the *Zethus*. But one day moth, I think, was seen here, a pretty fellow I had never before found. It is, I suppose, the *Deiopcia aurea* Fitch, afterward described by Clemens as *Poecilopteta compta*, and called by Prof. Smith, in his check list, *Oeta aurea* Fitch. I am not sure of this synonymy, as I am away from my library. It is a showy insect, though small, with fore wings of shining orange, marked with bluish-black patches containing yellow spots; hind wings dark, semi-hyaline. I took several specimens of this moth. *Composia fidelissima* was not seen at all. There were no night moths, or almost none, two or three microlepidoptera and one small geometer, that was all, I think. Of Coleoptera I found some forty species in the two weeks of my stay. Of these over twenty were not included in Dr. Hamilton's list of Lake Worth Coleoptera ("Can. Ent." xxvi, 250) nor in my additional list ("Can. Ent." xxvii, 9).

Many of these beetles were found apparently hybernating under bark, boards or rubbish, and were quite torpid. The species most common here last season were not found at all, or in very small numbers. The little Anthicid, *Mecynotarsus elegans*, so very abundant on the hot white sand near the ocean last year was scarce and hard to find; I saw none at all until a few days before I came away, when I secured a few. The large whitish green weevil, *Pachnæus distans*, was taken hybernating under the fibrous sheaths of the leaves of cocoanut palms. *Artipus floridanus* was found in same situations. But my most interesting work in beetle hunting was done by dredging. Much of the land here is drained for cultivation by ditches in which the water (brackish) always stands at about the level of hightide in the sea. In these, with a very roughly improvised net made of a piece of muslin sewed to an awkwardly bent bit of iron wire whose twisted ends made the only handle I could contrive, I dredged with much success. I took in this way thirteen species, some common, some rare. Among them were *Rhantus calidus*, *Bidessus exiguus*, *Coptotomus obscurus*, *Berosus striatus* and *Canthydrus gibbulus*. Perhaps the most abundant was *Hydrophilus nimbatus*. There was one handsome *Thermonectes*, which Mr. Liebeck labels *ornaticollis?* On the ocean beach I found a few specimens of *Phaleria longula*, and *P. picipes* under timber or seaweed, but they were not common. In same situation I found one *Pæderus floridanus* and several specimens of *Aleochara* sp. Flying along the sand in the hot sunshine I took, one day, two specimens of *Pompilus juxta*, a pretty black and red sand-wasp, not hitherto recorded from the United States. I saw very few larvæ of any kind. Three or four caterpillars, evidently *Ecpantheria scribonia* were found torpid under boards. In the trunk of a cocoanut tree, in a sort of cocoon made by hollowing out a cell, and lining it with silk mixed with bits of wood as fine as sawdust, I found a whitish, grub like larva. I cut out the piece of wood containing the cocoon and took it home. I dared not examine the larva very closely for fear of disturbing it. Its general color was sordid white and it had inconspicuous tubercles each bearing a fine, short hair. It left its old cell and constructed a fresh one in the same piece of wood. There it remained, alive, but without food as far as I could judge, for two weeks. Then it pupated, and at the expiration of three weeks more, there emerged a fine, perfect

specimen of *Litoprosopus futilis*. This moth I have never taken except at Rockledge, on the Indian River, where it is not uncommon. But it has been found by others in various parts of South Florida. I do not know whether its life-history has been recorded.

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THE ASSEMBLING OF THE CECROPIA MOTH.

By O. S. WESTCOTT, Maywood, Ill.

This is a somewhat hackneyed topic, but an experience of mine last Summer is possibly worthy of record.

In the Spring of 1894 I collected a large number of *Cecropia* cocoons, from which the moths began to emerge early in June. On the night of June 9, 1894, I left one female in a cage made of wire gauze. On the morning of the 10th I found thirty-six males about the cage. On the night of the 10th I left two females in the cage, but on the morning of the 11th there were but seven males near it. The weather was oppressively warm, but otherwise the climatic conditions were not noticeably different. On the night of the 11th I left five females in the cage. On the morning of the 12th there were eighty-one males at the cage. Two of these were wrapped in what was apparently a loving, if not conjugal, embrace. I placed them in a cage by themselves and they remained *in coitu* (etymologically speaking) the entire day.

On the night of the 12th I placed six females in the cage. When I looked out of an upper window early on the morning of the 13th there was a cloud of Cecropias on and about the cage and extending from it for several feet in every direction, which reminded me at once of the only flight of *Danais archippus* it has been my good fortune to see. When I once took seven *archippus* at one sweep of an insect net, I thought Lepidoptera were just then abundant, but the present experience was even more striking. A cat was amusing herself in striking down and *devouring* some of the most active ones, leaving, however, the wings. Many were flying away, but the number remaining when I came to count them was two hundred and eighteen. Of these there were five pairs *in coitu* (!). All, however, were males.

On the morning of the 12th a robin was busy among them, but the cat had evidently made way with more than a score.

Whether cats and robins eat moths extensively or not is perhaps not proven, but every one knows that woodpeckers frequently pierce the cocoons; and two pet squirrels belonging to my nearest neighbor ate, with avidity, all with which I supplied them.

Thus in four days I had toled to my cage three hundred and forty-two and more males of this well-known insect. I trust by destroying this number that there will be an appreciable diminution of its numbers in my immediate vicinity the coming season.

NOTE.—Dr. Westcott's mention of the cat feeding upon the Cecropias reminds me of a fact which I have never placed on record, but which has probably been noted by others. Some years ago I visited an uncle in Springfield, Ill., and attached to his house was a large garden filled with flowers of many kinds. Among others a bed of Petunias in full bloom attracted my attention, and I concluded to ascertain what Sphinges came there that evening. When I took my stand I found the house cat quietly crouched close to a cluster of the largest and most attractive flowers; but concluded not to disturb her. Soon a *Sphinx carolina* made its advent and began feeding near the cat, which, to my surprise, was now all alert. Suddenly there was a quick stroke of the paw and a short jump, and mistress cat leisurely devoured her capture, first tearing away the wings. She caught more moths than I did that evening, and I was informed that this was a nightly habit of Pussy's.—J. B. SMITH.

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FOOD-PLANTS.

By J. B. LEMBERT.

I have observed the following species of Lepidoptera oviposit in the Yosemite National Park during the year 1894:

Annaphila decia oviposits on the underside of the leaves of *Enanus douglasii* on February 26th. *Anthocharis reakirtii*, March 29th, on the stalk of *Thysanocarpus pusillus*. *A. sara*, April 13th, on the stalk of *Thysanocarpus pusillus*, *Nisioniades persius*, *Trifolium ciliatum* and other species *Melitæa baroni*, April 9th, *Collinsia torreya* on the underside of the leaves in two lines or rows, one always having one or two more eggs than the other row. *Thecla dumetorum*, April 9th, in the heart of the unopened, dense flower heads of *Hosackia argophylla*. *Euclidia, cuspidea* April 13th, on dried stalks in twos and threes to the number of eight or nine near the preferred food-plants, *Lupinus*

chamisorus. *Kodiosoma*, April 8th, on *Trifolium ciliatum*, *Escholzia epeciodes*. *Gillia achillæfolium*, *Festuca myurus* and dried twigs. *Lycæna piasus*, on the racemes of the *Lupisus densiflora*, and on the bracts of *L. chamisonis* after they have fruited, *Lycæna* var. on the innerside of the unopened buds of the thyrse of the *Æsculus californicus* (Buckeye). *Pyrameis carye*, May 6th, on the leaves of *Lupinus*, upperside. *Lycæna acmon*, on or near the top buds of *Hosackia parviflora*. *Cœnympha california*, May 6th, on dried twigs near its food plant, *Melica bubbosa* (a grass). *Thecla nelsonii*, June 9th, *Libocedrus dicurrens*, always on the shaded side of the leaves. *Ctenucha rubroscapus*, July 10th, on the stalks of *Hosackia forreya* *Alaria florida*, July 10th, *Oenothera brenuis* var. *grandiflora*, buds habits same as the eastern species. *Hepialus lembertii*, most anywhere on the ground and in the edge of marmot holes, wet low ground. *Anthocharis lanceolata*, on the fruit pods of the *Arabis arcuata*. *Chrysophanus mariposa*, on the stalk and the underside of the leaves of *Vaccinium*. *Chrysophanus helloides*, *Oxytheca spugulina* and *Guzoppytum diffusum*. *Melitæa chalcedon*, on *Pentstemon brachycarpa* and not gregarious like the high Sierra variety.

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A CASE OF MIMICRY.

By Otto Lugger.

Among the many curious things encountered among insects few are more interesting than the mimicry shown by many of our pets. It almost seems as if some of them could actually distinguish not simply between colors, but even between the most delicate shades of colors. Those that have hunted for *Catocalæ* have reasons to feel certain that these showy moths know all about the colors of the upper surfaces of their front wings, and that they are perfectly able to select such portions of the bark of trees that harmonize and blend with them. We find the same thing among the Geometridæ, only in this case the color of the upperside of both wings has to come into action, as these delicate moths rest with more or less expanded wings. Some years ago I accidently discovered a member of this family of moths that forms a most peculiar exception to this rule. While collecting

certain kinds of grasses near Lake Harriet, a beautiful sheet of water in the suburbs of Minneapolis, and surrounded in part by a public park with fine roads for driving, I passed a large elm tree. Some ten feet from the ground was a small cavity in this tree, almost entirely hidden by an old spider-web. Happening to look upwards I observed a moth that was not yet represented in my collection, and acting upon the rule that a poor specimen is better than none, I rolled some stones against the tree to enable me to reach the specimen. As I was reaching for it the apparently dead insect took wings and disappeared. Of course this was decidedly unexpected, as the whole appearance of the moth was that of a dead one captured some time ago by a spider. Ruefully looking at the pile of stones, a monument to blasted hopes, I continued my search for grasses, yet the thought of having been duped by an insect rankled in my mind for over an hour, when I reached the conclusion that something had been wrong about these proceedings, and so I retraced my steps to make at least an attempt to solve the mystery. As good luck would have it, the same, or another specimen of the same kind, occupied the identical spot, apparently also dead. With great caution I approached and reached for the insect, when—presto—it disappeared by suddenly flying around the tree, so that my eyes could not follow it or observe it settling. Knowing now that one or more of these moths must be in the vicinity I proceeded as if hunting for *Catocolæ*, by cutting off a twig full of leaves. This, however, wound up the affair in a most unexpected manner, as the rough voice of a policeman ordered me away, even threatened to arrest me for cutting off plants. Telling him why I had done so made little impression upon him, evidently not possessing any entomological inclinations, and I had to postpone further investigations until the following morning. Taking my boy along, and starting early, we found that the coast was clear, and not to offend again I used the twig cut off previously. The very first tree, when brushed with the twig, seemed to be alive with the desired moths, but they disappeared so rapidly among the other trees in the grove that none could exactly be spotted. I now remained stationary and had my boy flush other specimens, and by concentrating all attention upon one individual moth I saw it settle upon a tree and—disappear. By continuing the work of flushing the moths I soon had an opportunity to see the whole operation

performed right before my eyes. A moth landed within two feet from me upon a tree, run rapidly a few inches, and—disappeared. But as my eyes were upon the exact spot hiding was no longer of any avail, and the insect appeared as in the illustration given below, which is taken from a photograph. The moth after reaching the tree, would run to some projecting piece of bark that had a certain grayish color so common upon old elm-trees, then make a quarter turn, and folding its wings in a peculiar way upon the spot selected blended so well with it as to become invisible.

This is not so well shown in the illustration, as the dead insect, though fixed in the exact position, in drying projected farther away from the bark than when alive. If this geometer would rest in the normal position of such moths the color of the upper surface of all wings would be in contrast with the surface upon which it would be resting. Only the color and markings of the underside of the lower wing, and a narrow margin of the upper edge of underside of upper wing, harmonize with the grayish spot mentioned before. These portions, therefore, must be displayed, and all others must be hidden. The insect, by making a quarter turn, and by pushing the upper wings deeply between the lower ones effectually hides all colors not in harmony with the spot selected. This is peculiar enough, but as the colors upon the parts exposed vary to some extent, from very pale to dark, the insect in choosing a spot must select it accordingly. Of the hundreds of moths observed that morning, or until the policeman returned, none could be detected upon the trees if the spot upon which they settled was not carefully kept in sight. According to "Packard's Geometridæ" this interesting moth is *Marmopteryx gibbicostata* Walk.

Mrs. SLOSSON has returned to New York, and will doubtless soon see the Northern Hills at Franconia, N. H.

SOME NOTES ON AMERICAN SPHINGIDÆ.

By W. SCHAUS.

Ællopus titan Cr. and *Ællopus tantalus* Linn. can always be differentiated by the presence in the former species of the gray scales at the anal angle of the secondaries above. I have examined several hundred specimens of both species and have never found the slightest difficulty in separating them. I believe *Ællopus fadus* Cr. to be a distinct species which will be re discovered ere long.

Madoryx pluto.

Sphinx pluto Cr., Pap. Exot. iii, t. 216, E (1779).
Hemeroplanes plutonius Hübn., Verz. bek. Schmett. p. 133.
Madoryx deborrei Bd., Sp. Gen. Het. i, p. 155 (1875).

Boisduval's *M. deborrei* is evidently the ♀ of Cramer's *S. pluto;* the identity was first suggested by Maassen in the Stettin Ent. Zeit. 1880, p. 68, and Mr. C. Oberthür is of the same opinion. I have recently received both sexes from Jalapa, Mexico, the species not having been previously recorded from Central America.

Calliomma denticulata sp. nov.

This species only differs from *C. parcæ* Fabr. in having the outer margins of the primaries very denticulate, and I should hesitate to consider it a distinct species, had I not seen a second specimen in the Saunder's coll. at Oxford. Expands 63 mm.

Hab.—Jalapa, Mexico.

Chœrocampa eumedon.

Chœr. eumedon Bd., Sp. Gen. Het. i, p. 272, 1875.
Chœr. ortospana Druce, Amer. Nat. Hist. (6), iv, p. 77, 1889.

I have examined the types of *eumedon* and *ortospana*, and find them identical.

Pachylia resumens Walk. and *Pachylia inconspicua* Walk. are the same, the latter being a rather large female.

Oryba achemenides.

Sphinx achemenides Cr., Pap. Exot. iii, t. 225, C. (1779).
Oryba robusta Walk., (nec. Bd.) Cat. Lep. Het. B. M. viii, p. 197 (1856).

As already stated by Mr. Druce in Amer. Nat. Hist. 1890, p. 214, Cramer's and Walker's species are conspecific.

Oryba kadenii.

Pachylia kadenii Schauf., Nung. Otiosus i, p. 16 (1870).
Pachylia robusta Bd., Sp. Gen. Het. i, p. 135 (1875).

Clanis imperialis Druce, B. Cent.-Amer. Heb. i, t. 3, f. 1 (1883).
Oryba imperialis Druce, Amer. Nat. Hist. (6), v, p. 213 (1890).

Amphonyx.

In Novitates Zoologicæ, vi, p. 91, the Hon. Walter Rothschild has added to the confusion already existing, in regard to the species of this genus, by failing to compare Boisduval's descriptions with the fig. on pl. v, of the Sphingidæ. In the index to plate v, fig. i, is said to represent *A. godartii*, whereas in reality it is an excellent representation of *A. beelzebuth*, agreeing with the description and the type itself which I have examined in Mr. Oberthür's collection ; the species therefore stands:

Amphonyx beelzebuth Bd., Sp. Gen. Het. i, p. 63, t. 5, fig. 1 (wrongly named *godartii* in the index to plate).
Amphonyx rivularis Druce, (nec. Butl.) B. Cent.-Am. Het. i, t. iii, f. 4.

Amphonyx rivularis Butl., is a very distinct species, ranging from Mexico to southern Brazil.

Amphonyx godartii.

Amphonyx godartii Bd., Sp. Gen. Het. i, p. 63 (1875).
Cocytius affinis Rothsch., Nov. Zool. i, p. 92.

In a long series of specimens from Mexico, Venezuela and Brazil, I can distinguish no difference. Possibly *A. godartii* is a synonym of *A. duponchelii* Poey, but I have no Cuban material, and the specimens so named in the B. M. seem distinct.

Amphonyx medor.

Sphinx medor Stoll, Pap. Exot. iv, t. 394, A. (1782).
Amphonyx tapayusa Moon, Pr. Liverpool Soc. xxxvii, p. 245 (1883).

Typical specimens of *A. tapayusa* are in the coll. of E. D. Jones, Esq., and cannot be separated from specimens of *A. medor*, which I obtained ex larva at Jalapa, Mexico.

Amphonyx walkeri.

Amphonyx walkeri Bd., Sp. Gen. Het. i, p. 67 (1875).
Amphonyx staudingeri Druce, Amer. Nat. Hist. (6), ii, p. 237 (1888).
Cocytius magnificus Rothschild, Nov. Zool. i, p. 92, pl. vii, f. 21 (1894).

Several specimens including the type of this fine species in the coll. of Mr. Oberthür agree perfectly with *A. staudingeri* and *C. magnificus*.

Protoparce nicotianæ.

Sphinx nicotianæ Bd., Sp. Gen. Hist. i, p. 75 (1875).
Protoparce jamaicensis Butl. Tr. Zool. Soc. Lond., ix, p. 608 (1877).

I have examined both types and find they represent the same species.

Protoparce hannibal.

Sphinx hannibal Cr., Pap. Ex. iii, t. 216, A (1779).
Sphinx hamilcar Bd., Sp. Gen. Het. i, p. 79 (1895).

I have seen Boisduval's type of *S. hamilcar* and agree with Mr. Oberthür, who has placed it as a synonym of *S. hannibal.*

Protoparce capsici.

Sphinx capsici Bd., Sp. Gen. Het. i, p. 80 (1875).
Pseudosphinx morelia Druce, Am. Nat. Hist. (6), xiii, p. 168 (1894).

I have examined both types and they are identical.

Sphinx lugens.

Sphinx lugens Walk., Cat. Lep. Het. B. M. viii, p. 219 (1856).

I believe this species has been wrongly identified in most American collections. The *lugens* of the Neumoegen collection is certainly not Walker's species. Correctly named specimens are in the collection of Prof. E. T. Owen, of Madison, Wis. Boisduval, Sp. Gen. Het. i, p. 87, also wrongly considered his *Sphinx merops*, Lep. Guat. p. 73, as representing *lugens* of Walker. *Sphinx merops* Bd., is the northern form of *Sphinx justiciæ* Walk.=*Anteros* Men. and differs chiefly in the absence of the small sub-dorsal orange spots which exist on the posterior portion of each abdominal segment in *Sphinx justiciæ*, the Brazilian form. The true *Sphinx lugens* Walk. was unknown to Boisduval. In the Neumoegen collection I saw several specimens of *Sphinx lugens* Walk., I believe, under the name of *andromedæ*, and what stood under the name of *lugens* was a species which I had not seen previously, and may be *eremitioides* Strk., which would therefore be a good species.

Sphinx andromedæ.

Sphinx andromedæ Bd., Sp. Gen. i, p. 89, Lep. Guat. p. 74 (1870).
Sphinx separatus Neum., Ent. Am. i, p. 92 (1885).

I have specimens compared with the above types. *Sphinx separatus* is a trifle paler than my Mexican specimens of *andromedæ*, but they are inseparable. In the British Museum collections, *Sphinx andromedæ* stands as *Sphinx leucophæata* Clem., and if correctly identified, Clemen's name will have priority, but, personally, I believe that *S. leucophæata* is a northern form of *Sphinx lanceolata* Felder, which is common in the State of Vera Cruz, Mexico.

Sphinx reevii.

Hyloicus reevii Druce, Ent. Mo. Mag. xix, p. 18. 1882.

Sphinx baruta Berg., Am. Soc. Argent. xv, p. 151, 1883.
Sphinx cossoides Rothsch., Nov. Zool. i, p. 94, pl. vii, f. 22, 1894.

On page 542 of vol. i, of "Novitates Zoologicæ," Mr Rothschild calls attention to the identity of his *S. cossoides* with *Hyloicus reevii* Druce, but he does not give the complete synonymy.

Lapara bombycoides.

Lapara bombycoides Wlk., Cat. Lep. Het. B. M. viii, p. 232 (1856).
Ellema harrisii Clem., Journ. Ac. Nat. Sc. Phil. iv, p. 188 (1856).

After carefully comparing my own specimens and those of the B. M. with Walker's type in the Saunder's coll. at Oxford, I can find not even varietal reasons for separating the above.

Dilophonota merianæ.

Erinnyis merianæ Grote, Pr. Ent. Soc. Phil. v, p. 75, t. 2, f. 2, 1885.
Anceryx omphaleæ Bd., Lep. Guat. p. 72 (1870).

With the exception of Prof. J. B. Smith, in his monograph of the Sphingidæ of N. A., the English writing Entomologists have failed to notice that Boisduval himself draws attention to the above synonymy in the Sp. Gen. Het. i, p. 128. As mentioned by Mr. Rothschild in Nov. Zool. i, p. 541, *D. merianæ* is a race of *D. lassauxii* Bd., *Anceryx lassauxii* Bd., Bul. Soc. Ent. France (3), vii, p. 157 (1859), which has the secondaries entirely black, all intermediate forms being found.

Dilophonata alope.

Sphinx alope Dru., Ill. Ex. Ent. i, t. 27, fig. 1 (1773).
Sphinx fasciata Swains., Zool. Ill. iii, t. 150, f. 2 (1823).
Auceryx edwardsii Butl., Papilio 1, p. 105 (1881).

The above represent our species, which is extremely abundant throughout tropical America.

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CALIFORNIA LEPIDOPTERA.

By MAX ALBRIGHT, Military Home, Los Angeles Co.

The December number of the ENT. NEWS contains a complaint that so few specimens are entering cabinets, which is very much to be regretted. As for myself, my hobby is Lepidoptera, and having taken up my neglected studies, only two years ago, I have explored the vincinity of this Home, and between Los Angeles and Santa Monica to some extent, and send a list of some which were taken by myself and which have been identified either by Dr. H. Strecker, of Reading, Pa., or by Prof. H. H.

Behr, M.D., Vice-President of the California Academy of Sciences, San Francisco, Cal.

Papilio rutulus,
" *eurymedon*,
Pieris protodice,
" *chloridice*,
Anthocharis sara,
Meganostoma eurydice,
Colias eurytheme,
Lycæna acmon,
" *sæpium*,
" *arota*,
Apodemia var. *virgulty*,
Charis guadeloupe,
Danais plexippus,
Agraulis vanilæ,
Argynnis coronis,
Melitæa gabbii,
" *chalcedona*,
Vanessa satyrus,
" *antiopa*,
Pyrameis atalanta,
" *cardui*,
" *carye*,
Junonia cœnia.
Limenitis lorquini,
" *bredowii*,
Satyrus sthenele,
" *silvestris*,
Cœnonympha californica,
Pamphila campestris,
Pyrgus syrichtus,
Nisoniades tristis,
" *catullus*,
M. quinque maculata,
M. cingulata,
Deilephila lineata,
Ctenucha brunnea,
Lycomorpha miniata,
Arctia autheola,
" *arizonensis*,
" *acræa*,
Arachnis picta,
Halisidota maculata,
Cossus robiniæ,
Plusia gamma, v. *californica*,
" *biloba*,
Harpyia occidentalis,
Heliothis armiger,
Cidaria californiata,
Homaptera lunata,
Agrotis samia,
" *tamlifera* and several unidentified,
Eutrepela nubilata,
Tetracis truxiliata,
" *ægrotata*,
Azelina huberniana.

These are a few ; the last eighteen months have been very bad for collecting on account of the great drought, which was broken by a good rail fall on the 5th and 6th inst.

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Popular Entomology—A Chase for a Butterfly.

There was a tradition among the young lepidopterists of the American Entomological Society, (1883) that some of the old members long since dead, and if still collecting, they are doing so in another sphere, had the pleasure of taking that delicate and pretty little orange-tipped butterfly, *Anthocharis genutia*. There were two localities mentioned, one was the bank of the Delaware, near Westville, N. J., and the other to the west of the Quaker

City, a place called Fox Chase. You all know that great desire to possess what we do not have, which is so strongly developed in the enthusiastic naturalist and collector. We wanted "the orange tip," and we wanted it badly. The time to look for it was in the Spring, when all nature was smiling and budding into life again. It was the time when the great shad seine was being hauled in, and we frequently watched this interesting process while looking for the butterfly on the white flowers (*Cerastium arvense*) which grew along the river bank. This locality was collected over for a number of years in the early Spring, but without success. It was in the year 1889 that at last we were rewarded; it was the 6th of May, and the day was still, clear and warm. Two specimens were taken: one was beautifully fresh and and not long from the chrysalis and the other faded and torn. We were paid for our trouble at last, but the reward was not very great, yet we were happy in having obtained the species in our own territory. The captured specimens were females, and the female lacks the orange tip to the wings, being entirely white. A few years after (1892) we succeeded in discovering a locality that has since given us our supply of this species. Having a number of botanical friends who went out on weekly excursions around the surrounding country, we asked one of them who was a good observer of such things, to keep a lookout for this insect. He reported seeing the species in some abundance near a place on the Perkiomen Creek called Arcola. This is twenty-eight or thirty miles from Philadelphia, and the train leaves very early in the morning. Of course we determined to go for them the very next day if the weather was suitable. Arising early in the morning we found the day everything that need be desired. The money invested in an excursion ticket, would have paid for the NEWS for a whole year, but we were willing to take some chances on the result, even if it became necessary to make an assignment afterward. The ride was an interesting one; we passed much historic ground, including Washington's headquarters at Valley Forge. We changed cars, taking the little narrow gauge railroad that runs along the picturesque Perkiomen. It was the morning of May the 9th, 1892, that this little trip was taken, and it was nine o'clock in the morning when we stepped off the cars at the little station at Arcola. Our net was gotten in order; cyanide jar in readiness and the chase began. The old bridge was crossed,

and according to directions we passed the flour-mill on the east side of the stream and made for the thick woods that covers the hills along the creek. Beyond the mill, as might be supposed, the first thing seen was the ubiquitous sign—NO TRESPASSING; next on the list in the usual order was the hamlet cur which made all the noise it knew how; next was the old man himself, but he said nothing, so we mustered up courage and made for the kindly shelter of the woods beyond. The banks of the creek run up for a height of 100 to 150 feet above the stream and are quite heavily wooded, and it was in this woods, and in a rather open thicket in the centre of it that we were told our coveted butterfly was to be found. We wandered around through the woods, and up and down the banks, but not a sign of an *Anthocharis* was seen. We were disconsolate; here was a day wasted—31 miles from home and our dollar gone. But fortunately there was a good time coming; about ten o'clock a small butterfly was seen flying close to the ground, and moving along in a fairly straight line with a quick flutering flight; it was netted on the wing, and we had the pleasure of taking our first orange-tip, a fine ♂ *Anthocharis genutia.*

From this on, they flew in some abundance, and were seen in a number of directions, traveling along, close to the ground, after their peculiar habit. While making a downward stroke of the net it came in contact with the sharp end of a broken off sapling, which was not noticed in the grass and weeds. Now here was misery ; orange-tips coming in many directions and a big hole torn in the bottom of the net. Fortunately we had our surgical pocket close along and the rent was sewed up with a surgical needle and iron dyed silk. To make a long story short, twenty-eight specimens were caught in a few hours, and we took the train for home, weary but happy, and now beautiful specimens of the orange-tip grace our cabinets.

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COCOON MIMICRY.

By RICHARD E. KUNZE, M.D., New York.

The discovery of an albino cocoon in the folds of an American silk flag as well as a number of others varying in tints from that of a light-colored barrel stave to a dark-brown cocoon spun up under circumstances, which left no doubt in my mind, that it was

for the purpose of *protective mimicry*, led me to write up this very interesting subject. On May 30, 1894, I removed two small silk flags standing with a number of others in the corner of a room kept for plants and pupæ during Winter, with a view of placing there in a window in commemoration of Decoration Day. One of the flags would not unfurl, and to my surprise found a *white* cocoon of the hybrid ex *Attacus ceanothi et A. ceoropia*, spun up between the *white bars* of the silk—a perfect *albino* of the fleeciest white silk. This cocoon contained a larva, which perished during the transformatory period nearly a year ago. This larva escaped from one of several apple barrels in which full-grown larvæ of my hybrids had been placed with a quantity of food-plant there to transform. Barrels were covered with cheese-cloth and fastened with cotton twine.

All the other cocoons of both of my hybrids ex *ceanothi et cecropia* and ex *columbia cecropia*,* which were spun up on branches of choke cherry (*Prunus serotina*), very nearly resembled the color of those twigs, or a little darker than a light umber-brown. A few cocoons were spun up to the cheese-cloth and others to the side of the barrel near the top of each barrel.

These cocoons were ever so much lighter in color, and that portion of cocoon adhering to barrel was the counterpart of color of the maple staves, while the part fastened to the cheese-cloth agreed in tint with unbleached muslin. It will be seen that some of the cocoons were of two different tints, according to position where attached. Cocoons spun up against the cloth were of quite the same color, and of these I had altogether about ten in number. Cocoons found attached to barrel staves were of the color of the wood, and of such I had from fifteen to twenty in all. When found adhering both to cloth and wood, two tints *protective* in every way were the result.

The cheese-cloth was a little soiled from frequent use over the barrels in which the larvæ were raised in my cellar. When larvæ were full grown they were transferred to other barrels on top floor of house, and each of the barrels contained from ninety to one hundred larvæ. Of *ceanothi et cecropia* there were three hundred and eighteen cocoons, and of *columbia et cecropia*

* Cocoons of *columbia et cecropia* were all, when attached to stem of food-plant, a shade or two darker than similar ones of *ceanothi et cecropia*. But when former were attached to barrel these cocoons were of a protective color.

only thirty-two cocoons, having from accident lost the most of my young larvæ of the last mentioned hybrid.

June 11, 1894, I found another cocoon made by an escaped larva out of one of the barrels, and very forcibly illustrating *protective mimicry*. I espied on the pine-floor of my plant-room, close by a bundle of printed American flags, tacked onto plain white pine sticks which had been undisturbed since New York's Columbus Celebration more than a year ago, a small female hybrid of *ceanothi et cecropia*. I failed to account for its presence there, having in January previous removed all of the hybrid cocoon to my office below. I examined the bundle of flags, untying the sticks, and there found between two of the pine-wood sticks a cocoon attached to the wood of both, and in color not distinguishable from the wood. I cut off that portion of those two sticks, leaving the cocoons in situ, which I sent to the editor of ENTOMOLOGICAL NEWS for preservation and future use, the same as I had previously done with other cocoons illustrating *Cocoon Mimicry*. By thus clinching the nail of necessary evidence, we escape the carpings of cynics, who like to argue from a more hypothetical point of view. Regarding color, I would say, that this last discovery, illustrative of cocoon mimicry, resembles cream-color more than any other, and compares favorably with cocoons of my hybrids found attached to the cheese-cloth cover of barrels.

I am sorry now that I did not preserve all of my light-colored cocoon or pupæ-cases found, and illustrating so forcibly the claim advanced in this paper. Many of those cocoons spun up to the cheese-cloth and barrelstaves, I sent out to my numerous foreign and native exchanges, along with darker ones found on stems of *Prunes serotina*. Dark cocoons were never found attached to side of barrel, and such of the dark ones, which spun up in the cellar before larvæ could be removed, were of the same shade as those found on food-plant in the barrels of upper part of house.

In further evidence of *Cocoon-Mimicry*, I must report another find of an *albino* cocoon of *Cerura multiscripta*, which I reared from a collected larvæ the first week of July, and from which emerged a perfect imago during the last week of same month in 1894. This cocoon was spun up between inch-strips of white blotting paper and the sides of a glass-jar used for breeding cage of *Cerura*. The strips of paper were placed between cover and

body of jar for purposes of ventilation, The larva had scraped off bits of blotting paper, mixing it with its oral secretion until plastic enough for house-building purposes. A light coating of this material was glued to the sides of the glass jar, and the rest was forced out toward the inner space of the cage, making a cell with a very convex wall. In other words, this larva ate its way into the middle of a strip of very thick blotting paper, throwing out the particles removed in the shape of a cell-wall, until it found space sufficient for transforming into a paper. The latter was plainly visible from outside of the jar, but not from opposite side. The thin coating was with difficulty removed from the glass so as not to mutilate the cocoon, and the latter I forwarded to Dr. Henry Skinner, editor of ENT. NEWS. Other cocoons of *C. multiscripta* reared in the same cage, were of the usual color and firmness, a kind of wood-brown and strongly made from the woody fibre of willow bark. Before I knew how to raise larvæ of various species of *Cerura* to pupation, and had not provided cage with canes of food-plant of sufficient thickness for larva to gnaw out a concavity to form the rear wall of its cell, they invariably perished, and would not favor me by utilizing strips of blotting paper.

ATTENDING the Farmers' Institute last week I was much interested in the (Prof. A. J. Cook) lecture on Insects. To-day we have been observing a phenomenon that is entirely new to me. At about nine o'clock A.M. our attention was attracted to a remarkable flight of butterflies. Our grove is bordered on the east and west sides by high close-set cypress trees. On the western side these trees stand about thirty feet from the first row of large orange trees. There was a stream of butterflies down this lane from the south to the north. This lane is about eighty rods long; a barn stands so as to cut it in two—about twenty rods from the avenue. The flight was rapid, and continued until three P.M. From nine until twelve M., as nearly as we could count and estimate, 200 butterflies passed each minute. After twelve the hedge cast a shade over the open space, but there were large numbers passing. At two o'clock we counted about fifty per minute. At four o'clock, only an occasional butterfly could be seen. I enclose you some specimens. A very good description is found in "The Natural History of New York."—*Pyrameis cardui*. The colors do not correspond exactly, but the markings are quite accurately described. Now this may be of no particular interest to you, from the fact that it may be common, but to me it was a novel sight.—GEO. D. FARNHAM, Riverside, Cal.

ENTOMOLOGICAL NEWS.

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PHILADELPHIA, PA., MAY, 1895.

LABELING INSECTS.

A NEW collecting season is about to open, indeed for a number of our subscribers it has already commenced, and we have had the pleasure of receiving specimens taken during March. Our attention is constantly called to the utter carelessness of most collectors in regard to putting proper data on their specimens, whether pinned or in papers. Too many are satisfied with the single label "mundus." We are thoroughly convinced that a specimen labeled "mundus" is depreciated in value from 50 to 75 per cent. If the specimen is a mounted one there are two things that should invariably be on the PIN; one is the EXACT locality where captured, and the other is the date of capture. It is not safe to have the date and exact locality on the name label as this gives an opening or chance for error. If on the pin it always travels with the insect and is part and parcel of it. I think that a number of our large collections made in the past will lose much of their value on account of insufficient data with the specimens, as our studies are largely biological and many of the problems of the future will be solved by accurate studies of distribution and the appearence of species and broods. Entomology has passed beyond the time when the mere arrangement of the named specimens in the cabinet was the end of all work. It wont do either to merely put on a specimen the name of the State where captured. There is an exceedingly interesting and valuable paper on this subject by T. D. A. Cockerell (Can. Ent. vol. xxi, p. 46) which we wish all entomologists could read, as Mr. Cockerell says, many do not realize what only a State locality may mean. "It may mean distinct zoo-geographical regions, any altitude from (in Colorado) 4000 to 14,000 feet, an area of 103,948 square miles.

That Colorado may mean snowy peaks, mountain forests or valleys, or level treeless plains, each presenting a distinct fauna of its own." Also we frequently depend on data for additional specimens, but if we have no such date we are at a loss. A number of times we have directed collectors how to get good things by looking up the data, but in many cases this could not be done as the author or the original collector was satisfied with giving the insect as found in Texas for instance (area 274,356 square miles), or in many cases the locality label was only "mundus."

THE latest album of the American Entomological Society, contains the pictures of D. S. Kellicott, J. B. Lembert, F. E. Blaisdell, W. R. Reinicke, G. B. King, J. L. Hancock, Edw. Norton, P. P. Calvert, A. J. Snyder, B. Neumoegen, W. B. Alwood, Wm. Grey, O. S. Westcott, C. H. T. Townsend, W. A. Nason, Herman Aich, F. Rauterberg, and room for more.

IN a recent letter, Mr. Wm. Schaus states that Mr. Herbert Druce informed him that he had lately received several specimens of *Eudryas Stae Johannis* Walker, from Mexico. This will be of interest to American Entomologists.

MOUFFET, referring to Feas, makes the following observations: "The lesser, leaner and younger they are, the sharper they bite; the fat ones being more inclined to tickle and play; and then are not the least plague, especially when in greater numbers, since they molest men that are sleeping and trouble wearied and sick persons, from whom they escape by skipping; for as soon as they find they are arraigned to die, and feel the finger coming, on a sudden they are gone, and leap here and there, and so escape the danger; but so soon as day breaks, they forsake the bed. They then creep into the rough blankets, or hide themselves in rushes and dust, lying in ambush for pigeons, hens and other birds, also for men and dogs, moles and mice, and vex such as passe by."—*Theatre of Insects*, p. 102.

AT a time when there were great swarms of Locusts in China, as we learn from Navarette, the Emperor went out into his gardens, and taking up some of these insects in his hands, thus spoke to them: The people maintain themselves on wheat, rice, etc.; you come to devour and destroy it, without leaving anything behind; it were better you should devour my bowels than the food of my subjects. Having concluded his speech, the monarch was about to put them in a fair way of "devouring his bowels" by swallowing them, when some that stood by telling him they were venomous, he nobly answered, "I value not my life when it is for the good of my subjects and people to lose it," and immediately swallowed the insects. History tells us the locusts that very moment took wing, and went off without doing any more damage; but whether or not the heroic Emperor recovered, leaves us in ignorance.—*Cowan's Curious Facts.*

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

THE SAN JOSE SCALE.—No. 4, of volume vii of "Insect Life," contains an article on this subject by Mr. L. O. Howard, in which he adds to the life-history of the insect, gives a record of what insecticide experiments have been made and states the distribution of the species so far as known at the present time. An interesting suggestion is made that possibly the scale is confined to the upper austral fauna in the East, and that it will not trespass to any extent upon the transition regions. The facts so far as we know them in New Jersey support this, because in spite of all my inquiries, I have not found any trace of the scale north of the Red Shale, and this in New Jersey certainly marks a distinct region. In fact this shale, upon which New Brunswick is situated, seems to belong to a distinctly more northern faunal region than many points further north; but interesting as this speculation may be, it is not what I intended to say on this subject. Mr. Howard has again pointed out that the scale was largely distributed from New Jersey, and his conclusions seems to be that the insect has so well established itself that we can scarcely hope to exterminate it; that is, it occurs in so many different places that it will remain unnoticed in some until it gets beyond practical control. It is possible that Mr. Howard is right, and I have been regretfully forced toward the same conclusion, without being thereby induced to cease efforts looking towards its extermination. The location of the New Jersey nurseries has been published in the agricultural journals, and, as nothing can be gained by concealment, much may be gained by a plain statement of the facts as they exist at the present time.

Plum Trees bearing the scales were introduced into New Jersey at about the same time by the Messrs. Parry, at Parry, Burlington County, N. J., and by the J. T Lovett Co., at Little Silver, Monmouth County, N. J. These two localities are at opposite sides of the State, the one near the Delaware, the other close to the Atlantic Coast; both are on approximately the same formation, although Little Silver is more than 20″ north of Parry. At Little Silver all the infested trees were grown one year, some of them longer, in a plot upon which was a long row of bearing Bartlett pear trees. The original plum trees were used to bud from, some were sold and all have long since disappeared; but from them the pear trees became infested. This row of bearing pear trees has been the point from which the nursery stock in the vicinity has been annually infested. At the time when I first saw the trees in the Spring of 1894, they were literally covered to the extreme tip of the twigs with the scale; it seemed as if there was scarcely room for another insect to fasten itself anywhere upon the bark, and many of the trees were practically dead. Mr. Lovett had already directed that these be taken out; not because they were

scaly, because that he had not realized, but simply because they were dying and of no further use. When I pointed out that every one was badly infested, he directed that they be all cut down and burned. This direction was carried out, because on a later visit I found that the trees had disappeared. In a large block of apple, pear, quince, plum and other fruit trees, not far from these bearing trees, I found the scales scattered everywhere; scarcely a plant was entirely free, while none was very badly infested. It was a general seeding down and at that time the larvæ were moving about. I pointed this out to Mr. Lovett and warned him of the danger in sending the trees out. He promised not to do so without treatment, and I arranged that later in the season I would again visit the nursery that I might see just how matters stood. This visit was made after mid-summer, and I found an increase in the number of scales on the nursery stock, found the original source of infection gone, and discovered the scales on a few other trees in another part of the nursery. These trees were destroyed by Mr. Lovett, and there remained then only one block upon which the San José Scale existed. After consultation with Mr. Howard concerning the practical details of gas treatment of nursery stock I recommended a fumigating box in which all the trees should be exposed to the gas before being sent out. February 22nd I again visited the nurseries with Mr. Collingwood, of the *Rural New Yorker*, and at his request. The stock had all been removed from the infested plot, and the apple trees, comprising much the greatest proportion of the number, were heeled in close by, in trenches. Mr. Lovett showed us the box constructed according to my suggestion, and which was suitable for the purpose, and stated that everything on that block had been fumigated. An examination of the scales on a considerable number of the apple trees indicated that the application had been successful. According to the foreman, who had actually attended to the work, the exposure to the action of the gas had been between one and one-half and two hours, and the amount of cyanide used was fully up to the amount recommended. I did not find a single living scale insect in the course of the examination made by me. All that I examined were white and flattened; none of them plump and yellow: nowhere could I get any appearance of life. It was, of course, a physical impossibility that I should examine each of the five or six thousand trees in the trenches; but I did examine trees here and there at different parts of the rows and made a point, as far as possible, of examining the scales where they were grouped most densely, and would be naturally most difficult to destroy. I believe that the treatment was as nearly successful as one treatment can ever be; but asked Mr. Lovett, as a matter of extra precaution, to fumigate again before sending out the stock, which he promised to do. The other stock that had been upon this nursery block had been in great part sold, but there yet remained a considerable number of pear trees of different varieties. These I found to be infested, and on these, though according to Mr. Lovett's statement, they had been treated as had the apple trees, the scales were alive.

There was no question of this, because everywhere plump, yellow insects were found under their scaly covering, and I could scarcely believe that they had been actually exposed to the gas; if they had, the work must have been so carelessly done as to be absolutely ineffective. The ground at this time was frozen solid, and Mr. Lovett had his man chop out with a hatchet those that I found were scaly, and he finally promised to destroy all the trees that had come from that particular block, except the apple trees already examined and found practically free from danger. Now, as a matter of fact, without almost criminal carelessness the scales can be completely exterminated in this nursery during the present season. It needs only the destruction of such stock as remains on hand at this time. There are no bearing trees that are infested with the scale; yet Mr. Lovett, as a matter of extra precaution, has declared that he will cut out what few remain in the nursery. If this is done, I see no reason why any stock grown in the future on this land should not be entirely safe and free from the scale.

The situation of Parry is somewhat different, and yet the history is nearly the same. Here also plum trees were imported from California, and these were infested by the scale. The trees remained in the nursery rows for two or three years, and were used to bud from. They never did well and were eventually taken out and destroyed; but the mischief had been done; the scales had spread from them to bearing trees in the vicinity. Fruit growing is a very important feature on the Parry farms, and a considerable acreage of trees soon became seriously infested. In the home orchards the ground is utilized to the greatest possible extent and low plants and shrubs are grown in portions of it. Among others currants, both black and white, became very seriously infested by the scale. We had, therefore, an abundant supply of sources from which nursery stock could become infested year after year; and this actually took place. When the Messrs. Parry realized that their orchards were so badly infested and that the nursery stock was also well spotted over, several blocks of valuable trees were taken out entirely and burnt, without any attempt made to treat them. Certain other varieties that did not seem to be badly troubled were left, with the idea that they might be treated and saved. I visited the nurseries at intervals during the Summer, and during this time a number of experiments were made as to the possibility of using the kerosene emulsion successfully against the scales. To some extent the applications were advantageous, especially where made when the larvæ were active, or just after they had set and before the scale had become impenetrable. But it was found that this was a very unreliable method and I advised making a Winter campaign; which suggestion was adopted for nursery stock, before it was sent out, the gas treatment was advised, and on February 26th, when I last visited nurseries, almost all that was heeled in had been thoroughly treated and on it I did not find living scales. Some parts of rows had not yet been fumigated and there plenty of living scales were found, showing at once a strong

contrast between treated and untreated portions. The fumigation had been interfered with by the heavy storms which had piled up the snow in such a way as to prevent practical work with the tent that had been constructed to cover the plants in the trenches. In heeling in the stock had been blocked in such a way as to make it convenient to cover for purpose of fumigation, and I believe that the treatment, so far as applied, has been successful. In the nursery rows many of the one year old shoots were more or less scaly, and all these had been thoroughly treated with caustic potash, every stick having been separately washed with a solution of about one pound, or more, in a gallon of water. The application was so severe that of some varieties a large proportion was killed, while in others there seemed little or no injury. As against the scale it had not been entirely successful, so there remain a number of one year old trees in the nursery rows that require further treatment. The scales have been so thinned down, however, that there is little chance of their spreading from the points at which they now exist. Many of the worst infested bearing trees, and especially those that were in the nursery plots have been cut down and burnt. In the orchard close by the trees have been cut back to the trunks and larger branches, and these have been so thoroughly washed, that there is no present danger of a spread from them, even if destruction has not been absolute. In providing for a new supply of trees the infested territory will be entirely abandoned and new land distant from bearing trees has been selected. Practically the two nurseries in New Jersey which originally distributed the scales are now the safest places to buy stock, and I believe that there will be no danger from any stock grown by them in the future. It will take some time to exterminate the scale completely on the Parry place; not on their nursery land so much as in their orchards. The nursery land can be, and will be, entirely cleared, leaving no scaly shoots or plants. The orchards cannot be in bearing condition again for two or three years to come, and this will give opportunity for the most radical kind of treatment to be applied to the trunk and branches.

Now a few words on the applications that have been made, and on the success attending them. Practically the fish-oil soaps has been most satisfactory, when used at the rate suggested by Mr. Howard—two pounds in one gallon of water—which is also the proportion recommended by me. I have received, within the past weeks, samples of twigs from a badly infested orchard, and on these I have failed to find living scales. Of the many hundreds which I turned over and examined under a good dissecting microscope, I found not one that showed the least trace of life. The treatment had been with a soap made by the farmer himself. He writes that he used "5 pounds of seal oil to one can of Lewis's lye, mixed according to directions which came with the lye. It made soap immediately. This I dissolved according to directions in Bulletin, two pounds of soap to a gallon of water, and applied with a whitewash brush on the 9th of this (third) month. I treated a few trees about four days

previous to this which I gave a second coat on the 9th, as there had been a rain the next night after the application." I received, at my request, specimens of the worst infested twigs, on which the scales were massed so as to conceal the bark entirely, and here also I failed to find a single living insect. I do not believe that we need quite despair of eradicating the scale, provided we can bring the farmers to a realizing sense of the importance of the matter, and this I think can be done in New Jersey at least.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

NOW READY.—The new Supplement to Henshaw's List of Coleoptera of America north of Mexico, has been completed, and will be mailed on receipt of price, **50 cents** per copy. Application for copies should be made to the Treasurer. See advertisement elsewhere.

Mr. PHILIP LAURENT contemplates a Spring collecting trip to Florida.

THE COTTON SCALE INSECT.—In 1856, Fitch described as a new species, *Aspidiotus gossypii*, found at Ningpo, China. This insect has not been seen since, but the short description might apply to immature specimens of some *Chionaspis* or *Diaspis*. All things considered, I should prefer to place it in the former genus, pending its rediscovery on the original food-plant at the original locality, or an examination of the types if they still exist. The purpose of this note is partly to draw attention to the species, and perhaps so lead to its re-discovery; but also to protest against the introduction of the name into our faunal lists, by Mr. Ashmead, as an *Aleyrodes*. (Ins. Life, vol. vii, p. 323). What possible reason there can be for identifying an *Aleyrodes* from Mississippi with Fitch's Chinese insect, I cannot imagine.

As having some bearing on the matter, I may add that at Kingston, Jamaica, I found numbers of *Chionaspis minor* Mask., and *Diaspis amygdali* form *lanatus*, on stems of cotton, mixed together. The orange-red ♂ of *Diaspis* were hatching on Aug. 8, 1892.—T. D. A. COCKERELL.

Mr. CHAS. LIEBECK expects to make a flying trip to the South this month, and hopes to have a few days in the mountains of east Tennessee, looking for *Cychrus*.

THE Sandwich Islands have the following tradition in regard to the introduction of Fleas into their country: Many years ago a woman from Waimea went out to a ship to see her lover, and as she was about to return, he gave her a bottle, saying that there was very little valuable property (*waiwai*) contained in it, but that she must not open it, on any account, until she reached the shore. As soon as she gained the beach, she eagerly uncorked the bottle to examine her treasure, but nothing was to be discovered.—the fleas hopped out, and "they have gone on hopping and biting ever since."—*Jenkin's Voy. U. S. Explor. Exped.*, p. 385.

IN going through my field book, I find a little incident recorded about the tenacity of life, of a *Pap. turnus* larva which may be of interest to some Lepidopterists.

Sometime in July last, a friend of mine from here visited in Vermont, and knowing my fondness for anything pertaining to natural history, procured a larva, which as he said, was in the act of covering part of the underside of a leaf with a silky substance; this was on Aug. 1st. Not having a suitable receptacle on hand, he took leaf and larva, arriving at the house, put the larva,—which, in the meantime, had crawled off the leaf—in a little wooden barrel-shaped box and temporarily, as he thought, in his trunk; being that very day called to some place in Connecticut, forgot all about the larva, and returned home on Aug. 18th. In opening his trunk came across the box, which he post haste brought to me. We found the larva, which proved to be a *turnus* minus food, still alive, but greatly reduced in size. *Turnus* is rather scarce around Elkhart,—although in beating the basswood for *Sap. vestita* and *lateralis* I have sometimes found the larva.—I was anxious of finding out what the result would be of so long a confinement without food and shut up in an almost air-tight box. Procuring food and comfortable quarters in my vivarium, it nevertheless refused to eat, and died on Aug. 24th. Now, I think under the conditions the larva was kept, it is remarkable that it survived so long.

P. J. WEITH.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

1. THE ANNALS AND MAGAZINE OF NATURAL HISTORY. London, March, 1895.—On the formation of new colonies by *Termes lucifugus*, J. Perez (transl. from Compt. Rend. Acad. Sci. Paris).

2. LE NATURALISTE CANADIEN. Chicoutimi, Quebec, March, 1895.—Our insect friends and insect foes, Rev. T. W. Fyles.

3. FLOWERS AND INSECTS by Charles Robertson.—No. xii [Clematis, Ranunculus, etc.] Botan. Gazette, xix, 3, March, 1894.—Rosaceæ and Compositæ, Trans. Acad. Sci. St. Louis, vi, 14, April 26, 1894.—No. xiii [Dodecatheon, etc.] Bot. Gazette xx, 3, March, 1895.

4. BULLETINO DELLA SOCIETA ENTOMOLOGICA ITALIANA, xxvi, 2. Florence, June 27, 1894.—Studies on ants of the neotropical fauna, C. Emery, 4 pls. Hymenopterological notes—ii, G. Gribodo. Revision of the European species of the family of the mosquitoes (cont.), E. Ficalbi. —3-4, Feb. 15, 1895. On a species of Lac from Madagascar and the insect living within, with observations on red lac from India and its insect, and on some other lacs, etc., A. Targioni-Tozzetti, figs.

5. REVUE BIOLOGIQUE DU NORD DE LA FRANCE, vii, 4. Lille, January, 1895.—Remarks on the comparative anatomy of the last segments of the body of the Lepidoptera, Coleoptera and Hemiptera, A. Peytoureau. On the normal habitat in the stems of cereals of an accidental parasite of man, *Pediculoides tritici*, R. Moniez.

6. THE GEOLOGICAL MAGAZINE: London, March, 1895.—The Miocene insect fauna of Oeningen, Baden, S. H. Scudder, 1 pl.

7. ZOOLOGISCHER ANZEIGER. Leipsic, March 11, 1895.—On the biology and classification of the tree lice (Lachninæ Pass. partim) of the Weichsel region, A. Mordwilko.—March 25, 1895. On the knowledge of the myrmecophilous and termitophilous Arthropods, E. Wasmann. On a new parasite of mammals, G. Canestrini.

8. ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, viii, 5, February, 1895 (received March 26, 1895).—A monograph of *Scytonotus*, O. F. and A. C. Cook, 4 pls.

9. THE ENTOMOLOGIST'S RECORD. London, March 15, 1895.—Collecting Noctuidæ by Lake Erie, A. R. Grote. Notes on butterfly pupæ, with some remarks on the phylogenesis of the Rhopalocera, T. A. Chapman, M.D. Discussion on the nature of certain insect colors, J. W. Tutt. Phytophagic species, A. R. Grote.—April 1, 1895. Collecting Noctuidæ by Lake Erie, A. R. Grote. Notes on butterfly pupæ, with some remarks on the phylogenesis of the Rhopalocera (cont.), T. A. Chapman. Discussion on the nature of certain insect colors, C. R. N. Burrows, J. Anderson, Jr., R. M. Prideaux. Hybridism, A. R. Grote.

10. VERHANDLUNGEN DER K. K. ZOOL.-BOT. GESELLSCHAFT IN WIEN, 1894, xliv, 3-4, January, 1895.—Contributions to the natural history of the Meloid genus *Lytta* Fabr., K. Escherich, 4 pls., figs. Two cases of adaptation, id.

11. ANNALES DES SCIENCES NATURELLES. ZOOLOGIE, xix, 2-3. Paris, 1895.—Glandular apparatus of the Hymenoptera (cont.), L. Bordas, 4 pls.

12. DIE NONNENRAUPE UND IHRE BAKTERIEN von Dr. A. Metzger und Dr. N. J. C. Müller. Berlin. Verlag von Julius Springer, 1895, 160 pp., 45 colored plates.

13. LE NATURALISTE. Paris, March 15, 1895.—The degrees of necrophilous tendency in Coleoptera, A. Acloque.

14. VERHANDLUNGEN DES NATURHISTORISCHEN VEREINS DER PREUSSISCHEN RHEINLANDE, etc. (6), i, 1. Bonn, 1894.—*Formica exsecta* Nyl. and its nest fellows, E. Wasmann.

15. OCCASIONAL PAPERS OF THE NATURAL HISTORY SOCIETY OF WISCONSIN, ii, 3. Milwaukee, 1895 (received April 2, 1895).—Spiders of the *Homalattus* group of the family Attidæ, G. W. and E. G. Peckham, 2 pls.

16. THE FAUNA OF BRITISH INDIA, including Ceylon and Burma. Published under the authority of the Secretary of State for India in Council. Edited by W. T. Blandford. MOTHS—vol. iii by G. F. Hampson. London: Taylor and Francis, 1895, pp. xxviii, 546; 223 figs. Treats of the Noctuid subfamilies Focillinæ and Deltoidinæ.

17. BIOLOGIA CENTRALI-AMERICANA, pt. cxx. London, January, 1895 (received April 2, 1895).—Coleoptera: vol. ii, pt. 1, pp. 489-496, D. Sharp (Colydiidæ); vol. iii, pt. i, pp. 297-312, pls. xi, xii, G. C. Champion (Sericornia). Hymenoptera: vol. ii, pp. 329-344, pl. xiv, P. Cameron (Mutillidæ). Lepidoptera-Rhopalocera: vol. ii, pl. lxxxiv, F. D. Godman and O. Salvin (Hesperidæ). Rhynchota-Homoptera, vol. ii, pp. 57-72, W. W. Fowler.

18. PSYCHE. Cambridge, Mass., April, 1895.—A comparison of *Colias hecla* with *C. meadii* and *C. elis*, T. E. Bean. Western Pediciæ, Bittacomorphæ and Trichoceræ, C. R. Osten Sacken. Failure to emerge of *Actias luna*, C. G. Soule.

19. PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, iii, 3 (issued March 28, 1895).—The oviposition of *Melitara prodenialis* Walker, H. G. Hubbard, figs. Notes on Melsheimer's catalogue of the Coleoptera of Pennsylvania, E. A. Schwarz. Further note on the structure of the ovipositor in Hymenoptera, C. L. Marlatt, fig. Description of the pine-cone-inhabiting Scolytid, E. A. Schwarz. Notes on the habits of certain Mycetophilids, with descriptions of *Epidapus scabiei* sp. nov., A. D. Hopkins, figs. A review of the work of the Entomological Society

of Washington during the first ten years of its existence, L. O. Howard. Additional observations on the habits of *Ammophila gryphus* Sm., T. Pergande. On the food habits of *Odynerus*, C. L. Marlatt. Notes on the genus *Liopteron* Perty, W. H. Ashmead. The phylogeny of Hemiptera, H. Osborn. On gossamer spiders' web, L. O. Howard.

20. INSECT LIFE, vii, 4. Washington, March, 1895.—Further notes on the San José scale, L. O. Howard, fig. Report on the Mexican cotton-boll weevil in Texas, C. H. T. Townsend, figs., map, The cotton or melon plant-louse, T. Pergande. The cotton worm question in 1894, E. A. Schwarz. Notes on cotton insects found in Mississippi (cont.), W. H. Ashmead. On the distribution of certain imported beetles, F. H. Chittenden. Injurious insects and commerce, L. O. Howard. Is *Cyrtoneura cæsia* an injurious insect?, D. W. Coquillett, figs. Insect fertilization of an aroid plant, H. G. Hubbard, figs. Notes and observations on the twig girdler (*Oncideres cingulata* Say), T. H. Scheffer. A cecidomyiid that lives on poison oak, D. W. Coquillett. A migration of cockroaches, L. O. Howard. The potato bud weevil, F. H. Chittenden. An ortalid fly injuring cereals, figs. The gray hair streak butterfly and its damage to beans, figs. General notes.

21. NATURE. London, March 28, 1895.—Orb-weaving spiders of the United States, O. P. Cambridge.

22. ANALES DE LA SOCIEDAD CIENTIFICA ARGENTINA, xxxviii, 5–6. Buenos Aires, November–December, 1894 (received April 9, 1895).—Flowers and insects, A. Gallardo.

23. JOURNAL OF THE NEW YORK MICROSCOPICAL SOCIETY, xi, 2, April, 1895.—Notes on the seventeen-year Cicada, E. G. Love, 1 pl.

24. KNOWLEDGE. London, April 1, 1895.—Winter life of insects, E. A. Butler, figs. The house spider in captivity, H. D. Nicholson.

25. ABHANDLUNGEN AUS DEM GEBIETE DER NATURWISSENSCHAFTEN HERAUSGEGEBEN VOM NATURWISSENSCHAFTLICHEN VEREIN IN HAMBURG, xiii, 1895.—Revision of the Tarantulidæ Fabr. (Phrynidæ Latr.), K. Kraepelin.

26. THE AMERICAN NATURALIST. Philadelphia, April, 1895.—Two more new species of *Lecanium*, T. D. A. Cockerell. A new Trombidian, J. L. Hancock, 1 pl.

27. ENTOMOLOGISCHE NACHRICHTEN, xxi, 5–6. Berlin, March, 1895.—Catalogue of the European bees, Dr. v. Dalla-Torre and H. Friese. On my new Muscid system, E. Girschner.

28. CATALOGUE GENERAL DES HEMIPTERES par L. Lethierry et G. Severin. Tome ii, Hétéropteres: Coreidæ, Berytidæ, Lygæidæ, Pyrrhocoridæ. Bruxelles, 1894, 277 pp. (including index), Tome i, 286 pp., containing the Pentatomidæ, is dated 1893.

29. THE CANADIAN ENTOMOLOGIST. London, Ont., April, 1895.—Variation in *Nemeophila petrosa* at Laggan in western Alberta, T. E. Bean. *Preptos*, *Tamphana* and *Arotros*, W. Schaus. *Thecla ontario* Edw., J. Fletcher. On the term Cydosiinæ, A. R. Grote. Some new Attidæ, N. Banks. Synopsis of the Dipterous genus *Phora*, D. W. Coquillett. Preparatory stages of *Euclidia cuspidea* Hübn., J. B. Lembert. Preliminary studies in Siphonaptera—iii, C. F. Baker. Mounting insects without pressure, R. W. Rennie.

30. THE ENTOMOLOGIST. London, April, 1895.—Life-history of *Ornithoptera richmondii*, H. Schneider, figs. Ants and their companions, C. W. Dale. Three new species of Coccidæ, T. D. A. Cockerell. On the causes of variation and aberration in the imago state of butterflies, with suggestions on the establishment of new species, Dr. M. Standfuss. Notes on the synonymy of Noctuid moths, A. G. Butler. Aberrations in the structure of appendages in the Coleoptera, T. H. Garbowski, D. Sharp, figs.

31. PROCEEDINGS OF THE CALIFORNIA ACADEMY OF SCIENCES (2), IV (extract). San Francisco, Feb. 19, 1895 (received April 5).—The Odonata of Baja California, Mexico, P. P. Calvert, 3 pls.

32. BULLETIN 109. New Jersey Agricultural College Experiment Station. Rutgers College [New Brunswick,] N. J., Feb. 28, 1895.—Cut worms, The sinuate pear borer, The potato stalk-borer, Bisulphide of carbon as an insecticide, J. B. Smith, figs.

33. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, XXXIX, 3. Brussels, March 30, 1895.—List of Trixagidæ, Monommidæ, Eucnemidæ and Elateridæ, imported in tobacco and collected by M. Ant. Grouvelle, E. Fletiaux.

34. JOURNAL OF THE NEW YORK ENTOMOLOGICAL SOCIETY, iii, 1, March, 1895 (received April 8, 1895.—Notes on the Pseudoscorpionida, N. Banks. New North American Tettiginæ, A. P. Morse. A combination of two classifications of Lepidoptera, H. G. Dyar. Life-history of *Heterocampa obliqua* Pack., A. S. Packard, 1 pl. A clew to the origin of the Geometrid moths, id. Domed burrows of *Cicada septendecim*, B. Lander. The Odonata of New York State, P. P. Calvert.

35. THE ENTOMOLOGIST'S MONTHLY MAGAZINE. London, April, 1895.—Coccids preyed upon by birds, R. Newstead. Are the antennæ of the pupa free in the family Tineidæ?, T. A. Chapman. The genera *Cryptohypnus* and *Hypnoidus*, G. C. Champion.

36. DEUTSCHE ENTOMOLOGISCHE ZEITSCHRIFT, 1895, 1. Berlin, February, 1895.—Response to Verhoeff's reply on the copulatory apparatus of male Coleoptera, J. Weise. Two new Cryptocephaline genera, id. On the copulatory apparatus of male Coleoptera, C. Verhoeff, 3 figs.

37. A MANUAL FOR THE STUDY OF INSECTS by John Henry Comstock, Professor of Entomology in Cornell University and in Leland Stanford Junior University, and Anna Botsford Comstock, Member of the Society of American Wood-engravers. Ithaca, N. Y. Comstock Publishing Company, 1895, pp. xi, 701 ; 797 figures in the text, six plates (plate i, the frontispiece, colored). 8 vo.

The appearance of a work of this size and kind by an author of reputation is always an important event. Those who knew not of the intended publication of the present volume were probably surprised, as we were, to find that Prof. Comstock has here given us an entirely new book, and not a continuation of his favorably known "Introduction to Entomology" of 1888. The new Manual is designed for more elementary students than the Introduction. The latter, as far as published, embraced 252 pages, of which 52 are occupied with the general characteristics of insects, 9 with the Thysanura, 25 with Pseudoneuroptera, 36 with Orthoptera, 5 with Physopoda, 90 with Hemiptera, 17 with Neuroptera. In the Manual the number of pages devoted to the same subjects are respectively 34, 4, 16, 17, 2, 54, 16. In the Manual we have also a chapter on zoological classification and nomenclature of 8 pages, and one of 39 pages on the relatives of Insects, that is, the other Arthropods. Another feature of the book in which it differs from the Introduction is the recognition of nineteen orders of insects, due mainly to the division of the Pseudoneuroptera and Neuroptera. The groups not treated of in the Introduction are the higher orders; here the Lepidoptera occupy 222 pages, the Diptera 77, the Siphonaptera 4, the Coleoptera 105, the Hymenoptera 80.

The aim of the Manual is stated in the preface to be that of meeting a pressing demand of teachers and learners in entomology "for a handbook by means of which the names and relative affinities of insects may be determined in some such way as plants are classified by the aid of the well-known manuals of botany." Analytical keys, therefore, occupy a prominent place, although for obvious reasons it is not pretended to extend them farther than families. As may be seen from the figures given above, those orders of insects of economic importance receive, and receive intentionally, a larger share of attention, the best known species in these groups being frequently described and figured. The book is very fully illustrated, and most of the figures, especially in the latter part (see the preface), are satisfactory. Such abundant illustration is a prime requisite in a handbook of this kind. A rather unfamiliar feature in entomological text-books is the indications for pronunciation which follow the technical names. Most of the species and groups mentioned are also provided with English names.

Altogether, without discussing any of the more technical questions concerned, we are pleased with the Manual, and recommend it to those for whom it is intended, and to those who desire a brief illustrated handbook of our common insects.

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper was published; * denotes that the paper in question contains descriptions of new North American forms.

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Doings of Societies.

April 9, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, No. 1509 S. 13th St. Members present: Messrs. Bland, Fox, Trescher, E. Wenzel, Hoyer, Dr. Castle, Johnson, Boerner. H. W. Wenzel and Schmitz Honorary members: Drs. John B. Smith, Geo. H. Horn and Henry Skinner. Meeting called to order at 8.50 P.M., president Bland presiding. The president, in a brief address, officially announced the death of our late member and ex-vice-president, C. Ernst Seeber, who died on March 28th, after a short illness, from pneumonia, stating that, in consequence, the regular business of the Social for the evening would be suspended. It was moved and seconded that Mr H. W. Wenzel be authorized to procure a photograph of Mr. Seeber for the Social. On motion of Prof. Smith a committee of three was appointed as follows: Mr. H. W. Wenzel, Dr. D. M. Castle and Wm. J. Fox, to draft suitable resolutions in memory of our late fellow-member, a copy of the same to be forwarded to the family of the deceased. Mr. Boerner stated that the family of Mr. Seeber desired, through him, to extend their thanks to the members of the Social for the respect they had shown for the departed, and their attendance at the funeral. The president stated, in conclusion, that out of respect to the memory of the late member, the adjournment to the annex would be omitted, and therefore declared the meeting finally adjourned.—THEO. H. SCHMITZ, *Secretary*.

BROOKLYN ENTOMOLOGICAL SOCIETY.—The monthly meeting was held in the Art Rooms, Montague Street, Brooklyn, Tuesday evening, April 2nd, ten members present; five new members were elected. After routine business Prof. J. B. Smith read a paper upon "Variation in Insects." He exhibited, and commented upon, a series of Noctuids showing very great variation in color and ornamentation, and took strong ground against giving names to any variations unless these were geographical and to the exclusion of other forms, thus following the ornithologist's code. He also observed that each species must be judged by itself, for one might vary decidedly, and yet the same variation in the same genus might cover a number of good species as shown by structural differences. A general discussion followed, and the unanimous opinion seemed to be that it is very useful, if not necessary, to have names for marked variations, whether geographical or not, especially if they exist commonly.

The officers of the Society now are:

President, Prof. J. B. SMITH.
Vice-President, EDW. L. GRAEF.
Secretary, GEO. D. HULST.
Corresponding Secretary, A. C. WEEKS.
Treasurer, C. H. ROBERTS.
Librarian, Dr. R. OTTOLENGUI.
Curator, H. MEESKE.

The meetings are on the first Tuesday of each month in the Art Building, Montague Street, Brooklyn, N. Y.

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

FEBRUARY 28, 1895.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. Geo. H. Horn, director, presiding. Dr. Horn mentioned various species of *Scymnus*. The differences in the secondary sexual characters were pointed out and described in both sexes and illustrated by drawings on the black-board.

Meeting held March 28th.—Dr. Horn, director, presiding. Mr. Johnson, on behalf of Prof. Aldrich, presented to the American Entomological Society, specimens of seven species of Dolichopidæ, two of which were represented by type specimens. Mr. Johnson presented a type of a new species of *Odontomyia*. Mr. Johnson said, that in the preparation of certain illustrations of Diptera he had prepared, he had experimented somewhat in making the plates. The specimens were photographed and the figures "touched-up" with China-white and India-ink, in order to strengthen the light and dark spots. Good results had accrued from this process, as was indicated by two half-tone plates exhibited. Mr. Laurent reported the capture of a specimen of *Tenebriodes bimaculatus* at Germantown. He announced to the Section the death of Mr. C. E. Seeber. The deaths of Drs. Ruschenberger and Ryder, members of the Academy were announced by the director, who reviewed the early work of the former, principally the issuing of a science primer, which the speaker had known to be the direct means of interesting more than one person in the study of natural history; in fact, gave the speaker his first insight into Entomology. Dr. Ryder's work in Biology was also praised. Mr. Frank Haimbach was unanimously elected a member of the Section. A fine crayon portrait of the late John L. LeConte, recently acquired by the American Entomological Society, was exhibited to the members.—WM. FOX, *Recorder pro. tem.*

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

TWO NEW AFRICAN LYCÆNIDS.

By W. J. HOLLAND, Ph.D., F. Z. S., F. E. S., etc.
Chancellor of the Western University of Pennsylvania.

MIMACRÆA, Butl.

M. neurata sp. nov. ♂.—Allied to *M. charmian* Kirby and Smith. The primaries and secondaries are narrower than in *M. charmian*. The inner margin of the primaries is straight. The primaries are dark brown with a narrow band of Orange-red, composed of four spots located beyond the

end of the cell somewhat more than half-way from the base to the apex. Of these spots, the uppermost is minute; the two next succeeding it inwardly are quadrate; and the fourth located between veins four and five is subtriangular, produced beyond the others externally, and retracted toward the cell. Below this band toward the inner margin is a broad subtriangular patch of orange-red, bounded above by the lower edge of the cell, and reaching to the inner margin. This light colored area is subdivided by the blackish veins. The secondaries are fuscous on the costa with the outer half-broadly fuscous, the inner half orange-red. The veins are blackish. On the underside, the primaries have the costa, the cell, and the part immediately adjacent thereto about the origin of the nervules blackish. At the end of the cell, there is a deep black spot, surrounded by a paler brownish cloud. The yellow markings on the upper surface reappear upon the lowerside, but are paler and less distinctly defined. The outer third is gray with the nervules whitish. On the interspaces upon the nervules, there are two whitish lines, which, running inwardly from the margin, converge at the outer margin of the orange-red and triangular inner tract. The secondaries have the outer third marked in the same way as the primaries. There is a pale creamy-yellow median bend running from near the costa to the inner margin, widening toward the inner margin, and obscurely defined both inwardly and outwardly. The basal third is pale Mars-red, marked with black spots, one at the base, one on the middle, and another at the end of the cell; and a fourth just beyond the end of the cell. Above the cell are two black spots and below the cell at either side of the origin of vein three are two smaller spots. On interval 1b are two geminate spots, the first below the spot in the middle of the cell, the two together forming a series with the two spots lying at the origin of vein three. There are a few indistinct, blackish markings near the costa on the inner side of the pale median band. The head, collar and thorax are black above and below, spotted with white. The abdomen is ochreous above and below touched with blackish on the upperside on the median line near the prothorax. Expanse 60 mm.

Hab.—Liberia (Good). This very distinct species may be distinguished at a glance from all others in the genus. I have named it *neurata* on account of the characteristic manner in which the bright tracts on the upper surface are divided by the black veins.

TERIOMIMA Kirby.

T. galenides sp. nov. ♂.—The anterior wings are quite black with a small orange spot on the cell. Beyond the cell near the costa are two larger spots, one above each other, of which the one nearest the costa is the smaller, and the lower one is produced outwardly. There are three orange spots located on the disc in immediate contact with each other; the middle spot located between veins two and three is oblong, longitudal; the two other spots are small and transverse. The three form a figure resembling the plus mark, +. There is an orange spot near the

inner margin, half-way from the base; the secondaries are black, like the primaries, and are traversed from just before the outer angle by a broad orange band, which diminishes regularly to the inner margin, on which it terminates; the fringes are narrowly white interrupted with blackish. On the underside the primaries are dark fuscous, with the inner margin obscure stramineous; the spots of the upperside reappear, and, in addition, there are a number of minute yellowish spots upon the costal and outer margins, and two or three sabapical spots; there are also some small spots upon the cell, both before and behind the central orange spot, which appears upon the upper surface. The ground color of the secondaries is as that of the primaries; the broad orange band of the upper surface is reduced and does not extend to the inner margin, as on the upperside, and is much indented externally; there are nine or ten small orange spots on the basal third, a relatively large orange spot on the costa near the middle, and a marginal and anal series of yellow spots of varying size, those of the marginal series, near the outer angle being the largest. The fringes on the underside are narrowly white, broadly interrupted with blackish at the end of the nervules. The antennæ are black annulated with white on the lowerside. The upperside of the body is black, the lowerside fuscous. The legs are black, with the tarsi annulated with whitish. Expanse 27 mm.

Hab.—Bulé Country, Cameroons (Good). I have named this curiously marked species, which is totally unlike any other in the genus, because of its somewhat mimetic likeness to the Hesperidæ of the Galenus group. The only species which at all resembles it is *T. adelgunda* Kirby. The type is unique.

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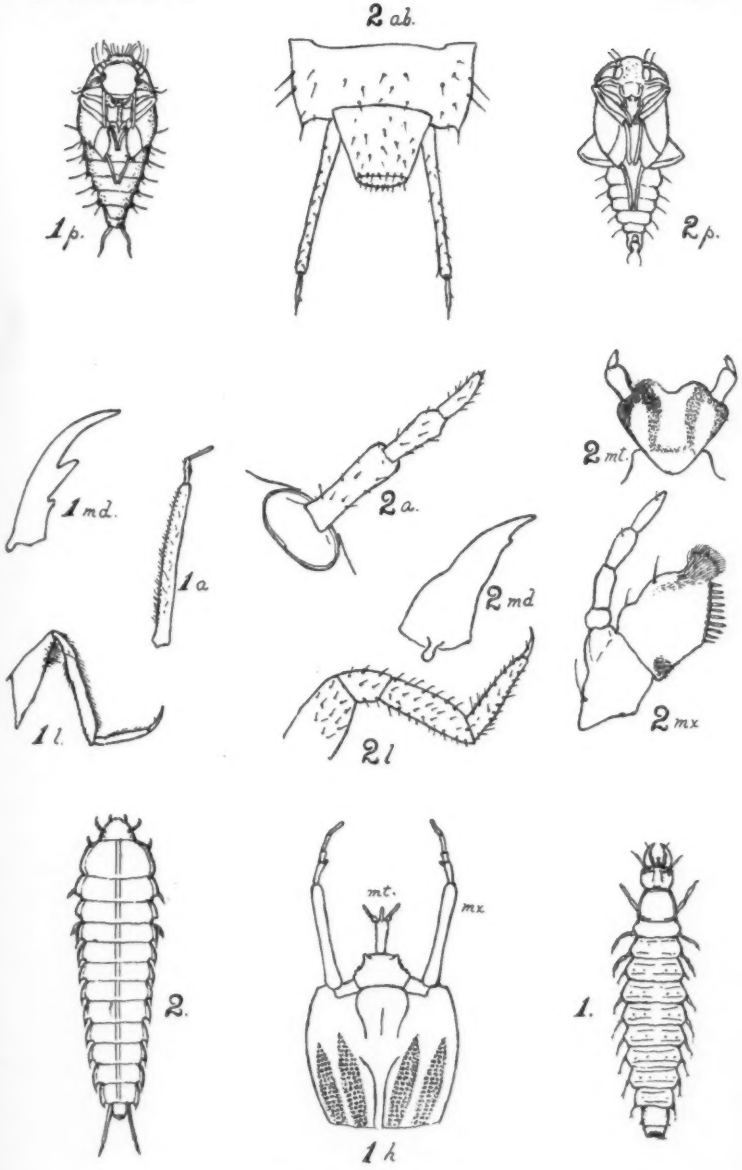
ON THE LARVÆ OF HYDROCHARIS OBTUSATUS AND SILPHA SURINAMENSIS.

By H. F. WICKHAM, Iowa City, Iowa.

The larvæ of the two above-mentioned species were obtained during a Summer trip to Bayfield, Wis., on the shores of Lake Superior. As neither are fully described as yet, notes and figures are appended.

Hydrocharis obtusatus Say, fig. 1.—Color of larva, above greenish, head and prothorax chestnut, beneath lighter. form moderately elongate, not very convex, broadest at about the middle of the abdomen. Length of full-grown living specimen, 28 mm.

Head narrower than the prothorax, sides rounded, more strongly near the base, front impressed each side, elevated at middle, these elevations and impressions extending also to the vertex, occiput with two triangular impressions at the base. Frontal margin obtusely lobed at middle.



COLEOPTEROUS LARVÆ (Wickham).

See page 168.

Underside of head smooth and shining, with two foveæ at the base of the mentum, and, immediately posterior to these, a somewhat reniform impression. There are also four large mottled lanceolate figures extending from the base for more than one-half of the entire length. The plane of the head is oblique to that of the prothorax. Eyes consist of six somewhat elongate ocelli on each side of the head. Antennæ situated behind the base of the mandibles, on the front, 3-jointed, the basal joint very long, bristly internally, the second and third much shorter and more slender, approximately equaling each other in length. Mandibles curved furnished with a very strong internal distal tooth and a much smaller proximal one. Maxillæ with a very long basal joint swollen at each end, second joint shorter and with an internal distal appendix, third joint again shorter, fourth not quite equal to the second, but about the same as the fifth. There are no bristles whatever to be seen, even under high powers. Mentum irregularly hexagonal, the apex with two distinct lateral teeth, sides with smaller serrations; palpiger elongate, broader near the tip, palpi two-jointed the second joint much the longer. Prothorax narrower at apex which is truncate, base rounded, sides narrowly margined, a transverse impressed line at apex, another (obsolete at middle) at the base, disc shining. surface unequal. Beneath, the sternal piece, anterior to the coxæ, is more perfectly chitinized and smoother than the remainder of the under surface. Mesothorax shorter than the prothorax and wider, roughly shagreened, not shining, two triangular smooth spaces at base, each with a large fovea. Spiracle on the ventral surface near the anterior angles. Metathorax similar in shape, shagreened, without the smooth triangular areas or spiracles. Abdominal rings resembling in dorsal aspect the metathorax; there are two dorso-lateral rows of blunt spines on each side and a row of lateral filamentary appendages, each tipped with two bristles, the last segment is corneous at tip and distinctly toothed or serrate. Legs with conical coxæ, which are as long as the femora, trochanters well marked by sutures; tibiæ shorter than the femora, claws long, slightly curved and provided with a strong spine near the middle of the length.

From the larvæ of *Tropisternus glaber*, which I have elsewhere* described the present species, differs in its greater size truncated thorax, shape of mentum and spined claw, besides in other minor characters. The specimens were found on the margins of muddy ponds and form cells in the damp ground by squirming motions of the body. In this cell they remain for some days before attaining the pupa state, which lasts six or seven days. One of mine pupated on the 16th of July, and the beetle appeared on the 16th. The pupa is sixteen mm. in length, clear greenish in color, becoming brownish about the head and limbs as matu-

* Bull. Lab. Nat Hist. State Univ. of Iowa, II, p. 338.

rity approaches. The figure will obviate the necessity for a long description, the striking points, to which attention should be directed, being found in the long palpi, the strong bristles and the appendages of the terminal abdominal segment.

Silpha surinamensis Fabr. fig. 2.—Color of larva nearly black above, a light yellowish dorsal line, interrupted at the posterior margin of each segment, extending almost the entire length; the sides of the thorax and abdomen are also bordered with the same color. Beneath yellowish with a few brown markings. The form is elongate, tapering behind, moderately convex, last abdominal segment with two straight appendages. Length, in spirits, 19 mm. Head broader at base, sides rounded, front sinuate laterally and emarginate at middle, surface of head rough with large punctures and unequally impressed. Eyes six on each side of the head, a group of four being situated on the dorso-lateral surface behind each of the anntennæ and very close to the thoracic margin, the other pair is on the ventro-lateral surface somewhat anterior to the group mentioned. They are of fairly large size. Antennæ inserted near the sides of the head, immediately anterior to the large group of eyes, the basal joint (?) or support of scarcely appreciable length, the others of good size, somewhat bristly and decreasing in length and thickness to the last, which is tipped with a short spine and a few very minute aciculi. Mandibles moderately strong, sinuate on the outer edge, apex acute, internal edge with a tooth near the tip and sinuate. Maxillæ with a broad inner lobe, the inner margin with a series of ten articulated spines on the apical half and a brush of bristles near the base, tip with a much larger brush of bristles which extend also for some distance down the outer margin. This margin is armed with two long stout bristles. Palpus four-jointed, borne on a swollen base, the first joint short and thick, the three following more elongate and subequal in length among themselves, the last being, however, more slender and bearing a few aciculi at apex. Mentum somewhat obcordate in form, broader before the free end which is sinuate at sides and deeply emarginate at middle, the palpi heavy, two-jointed, the basal joint much the larger, the apical with a few aciculi at tip. The body of the mentum is furnished with short bristles distributed in close array over a pattern shown in the figure. Prothorax broader towards the base, sides somewhat rounded and very slightly sinuate, apex less rounded, angles not marked, side margined, disc with a fine longitudinal median line, surface irregularly rugose. Meso- and metathorax shorter, sides rounded anteriorly and with a subangulation behind the middle, surface finely transversely rugose. Abdomen with fine grayish or whitish hairs on the dorsum and composed of nine true segments and a proleg. The first eight segments have a well-marked thin margin, which is rounded anteriorly and acute posteriorly; on the ninth segment this margin is less evident, though present. These marginal pieces are all finely bristled externally and more coarsely at the posterior angles. The appendages which are borne on the ninth segment are straight, two-jointed and spiny,

the first joint long but heavy, the second short and more slender, tipped with a long bristle. Legs stout, the coxæ prominent, trochanters separated from femora by a distinct suture, tibiæ tapering to tip, claws slightly curved and with a strong spine before the middle. Spiracles in nine pairs, the first situated under the posterior prothoracic angles the remainder in segments 1–8 of the abdomen, gradually receding from the anterior ventral margins as we proceed backwards.

This larva differs in many important particulars from that of *Silpha ramosa* which Mr. C. F. Gisslar has described in the "American Entomologist." Vol. iii, pp. 265–267. In *S. surinamensis* the third antennal joint shorter than the first while in *S ramosa* it is much longer. In *surinamensis* the mandible has a tooth internally, the first joint of the labial palpi is the larger and the claws have a single spine on the lower surface, while in *ramosa* the mandible is without molars, the joints of the labial palpi are of equal length and the claws are said to have two spines at middle. The pygidial appendages are also different. A full knowledge of the larvæ of our American Silphæ is much to be desired, as likely to throw light on the real value of the divisions proposed in the genus as now understood in this country. Two of these larvæ were obtained on the 20th of June, one of them in its cell beneath an old log, ready for pupation, the other crawling on moss. The first-mentioned specimen disclosed the beetle on the 3rd of July. The pupa is very sensitive to touch and wriggles vigorously at the least disturbance. It is remarkable for the serrate thoracic margin, the prominent hind legs and slender abdomen with its long lateral bristles and crooked terminal appendages. The length is 18 mm., the color white.

EXPLANATION OF PLATE.

Fig. 1.—*Hydrocharis obtusatus* Say, larva: *p*. pupa; *a*, antenna; *l*, leg; *md*, mandible; *mt*, mentum; *mx*, maxilla; *h*, head, under surface.

Fig. 2.—*Silpha surinamensis* Fabr., larva: *ab*, ninth abdominal segment with appendages (under pressure). The other lettering is the same as in fig. 1.

THE larvæ of *Tenebrio molitor*, commonly called Meal-worms, which are found in carious wood, are bred by bird fanciers to feed nightingales, and constitute the only bait by which these shy birds can be taken; a fact the more curious when it is considered that the nightingale, in a state of nature, can seldom or never see these larvæ. They are also used to feed chameleons which are exhibited.—*Cuvier Anim. Kingd. Ins.* i, 569.

OBITUARY.

OLIVER JACOB STALEY, of Marshall, Saline County, Mo., died July 6, 1894, while on a collecting trip near home. His body was found by searching parties in a creek, face downward. A sultry day induced him to take a bath, with fatal result. Mr. Staley was born in Princetown, Schenectady County, N. Y., and removed with his parents to Marshall, Mo., thirteen years ago. He practiced law for about four years, and was in the twenty-fifth year of his age. He was a member of the Y. M. C. A. and was much respected by everybody. He published "A List of the Butterflies found at Marshall, Missouri, and Vicinity." From childhood up he had a fondness for Lepidoptera, but his active work occupied the last six years of his life (the death of Mr. Staley was mentioned in the NEWS, vol. v, p. 236).

CHARLES W. STROMBERG died at his home in Galesburg, Ill., on March 26 (1895), after a lingering illness of consumption. Mr. Stromberg went to to Phœnix, Ariz., over a year ago, with the hope that he would recover his health. He returned last Fall, the change not having benefited him to the extent expected. Mr. Stromberg was born in Sweden, in 1856, and came with his parents to this country twenty-nine years ago. From boyhood he was devoted to scientific studies, and of late years Entomology has been his favorite study, and he had obtained recognition as an excellent student in that branch of natural history. He had amassed a fine collection of the insects of his State; his collection of Coleoptera being especially complete. Mr. Stromberg was quiet and reserved, and gentlemanly in disposition, and was naturally refined in his tastes. He will be greatly missed by his entomological associates and correspondents.

C. ERNEST SEEBER, aged sixty-one, died March 28, 1895. He was a well-known Philadelphia entomologist, and one of the early members of the American Entomological Society, and was lately vice-president of the Feldman Collecting Social.

PAUSANIAS tells us, that in the temple of Parthenon there was a brazen statue of Apollo, by the hand of Phidias, which was called Parnopius, out of gratitude for that god having once banished from that country the Locusts, which greatly injured the land. The same author asserts that he himself has known the Locusts to have been thrice destroyed by Apollo in the Mountain Lipylus, once exterminating them by a violent wind; at another time by vehement heat; and the third time by unexpected cold. *Cowan's Curious Facts.*

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